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10/560,582	12/13/2005	Yoshihito Hamada	0425-1233PUS1	6611
2252	7590	02/06/2009	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			CORDRAY, DENNIS R	
PO BOX 747				
FALLS CHURCH, VA 22040-0747			ART UNIT	PAPER NUMBER
			1791	
NOTIFICATION DATE		DELIVERY MODE		
02/06/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/560,582	<b>Applicant(s)</b> HAMADA ET AL.
	<b>Examiner</b> DENNIS CORDRAY	<b>Art Unit</b> 1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 18 November 2008.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,3,4,6-18 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) 6-18 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,3,4 and 20-22 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

## DETAILED ACTION

### ***Response to Arguments***

1. Applicant's amendments filed 11/18/2008 have overcome the outstanding rejections over the cited prior art. Therefore, the rejections have been withdrawn. However, upon further consideration and due to the amendments, new ground(s) of rejection are made as detailed below.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1 and 4 recite that "the hydrophobic organic compound (A) and the emulsifying and dispersing agent (B) are evenly dispersed and enclosed within the water-soluble saccharide (C)." There is no disclosure in the instant Specification that both the hydrophobic organic compound (A) and the emulsifying and dispersing agent (B) are enclosed within the water-soluble saccharide.

The instant Specification recites:

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on p 39, 2<sup>nd</sup> paragraph that "the (A) component evenly dispersed by the (B) component is enclosed by the (C) component" (only the A component is enclosed);

on p 40, 2<sup>nd</sup> paragraph that "The paper manufacturing chemical agent particle of the invention may contain an oil chemical agent for paper manufacturing enclosed in the form of oil droplets dispersed in a water-soluble solid matrix and may contain an emulsifying substance based on necessity" (only the oil chemical agent is enclosed);

on p 40, 3<sup>rd</sup> paragraph that "The water-soluble solid matrix encloses the oil droplets (the oil chemical for paper manufacturing) and forms a coating on the paper manufacturing chemical agent particle." and "The oil droplets (the oil chemical for paper manufacturing) are enclosed in the water-soluble solid matrix" (only the oil chemical agent is enclosed);

on p 42, 1<sup>st</sup> paragraph that "particles are excellent in the capsulated state [the state that the oil droplets (the oil chemical for paper manufacturing) are dispersed and enclosed in the water-soluble solid matrix] (only the oil chemical agent is enclosed).

One of ordinary skill in the art would not have understood from the Specification that the emulsifying and dispersing agent are also enclosed within the water-soluble saccharide. There are no examples or analyses demonstrating such an enclosing.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 4, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al (US 2002/0117278) in view of Xu et al (WO 01/48024 A1) and further in view of Shibanai (EP-251132).

Ikeda et al discloses a composition for internal addition prior to papermaking that improves the bulky value (is a bulking agent) and strength, the composition comprising a compound (A) having a lyotropic degree of not less than 4%, and a water-soluble compound (B) (Abs; p 1, pars 5 & 6). In some embodiments, (A) is an ester of a polyhydric alcohol and a fatty acid (p 3, par 46) and the water-soluble polymer (B) is a starch (p 5, pars 80-81). Compound (A) is the claimed hydrophobic organic compound. The composition preferably contains a nonionic, anionic, cationic or amphoteric surfactant ( C), which improves the emulsification and/or dispersion of (A), thus is an emulsifying or dispersing agent (p 5, par 84; p 6, par 98).

Ikeda et al discloses that the composition is added internally (to the pulp slurry) before a papermaking step. A point of addition where the pulp can be uniformly blended (stirring conditions) is preferred (p 6, par 104). In an Example, the composition is added to LBKP pulp at 25 °C and paper formed (p 8, pars 123 and 129).

Ikeda et al does not disclose a powder composition or an average particle diameter. Ikeda et al also does not disclose the claimed species of saccharides.

Xu et al discloses smooth, stable, spherical and uniform particles comprising a cyclodextrin-guest complex. The cyclodextrins form inclusion complexes with water-insoluble, or hydrophobic, compounds (the guest water-insoluble compounds are enclosed within the cyclodextrin). The complex is soluble in water because the cyclodextrin has a hydrophilic exterior. Thus, the cyclodextrin is able to deliver a water-insoluble guest molecule into a composition. (Abs; p 1, Field of Invention section; p 2, last par; p 3, 1st par).

Xu et al teaches that the cyclodextrin complexes form agglomerates from a plurality of complexes of different sizes. Xu et al discloses including an emulsifying agent in the process of making the cyclodextrin complexes to produce smooth, stable, spherical agglomerates of complexes that are uniform in distribution. A starch hydrolysate such as maltodextrin is also combined with the other components when the resulting agglomerates are used as a dried product (p 3, middle par; p 5, last 2 pars; p 6, middle par). The cyclodextrin, water-insoluble compounds, emulsifier and hydrolysate are combined at ambient temperature (construed to mean 20-25 °C) to form a uniform dispersion or emulsion. The cyclodextrin-guest complexes form and the product is recovered as a powdery dry particulate comprising the cyclodextrin-guest complex encapsulated by emulsifying agent (pp 6-7, par bridging the two pages; p 8, 1<sup>st</sup> full par to end of par bridging pp 8-9). Examples of aggregates having median particle

sizes from 3.7 to 9.6 microns are disclosed (pp 11-15, Examples I – III, Tables 1-3). In one example, the guest is an  $\omega$ -3 fatty acid (an aliphatic acid) (pp 15-16, Example IV).

Xu et al does not disclose adding the water-insoluble compound into a papermaking process.

Shibanai discloses a method of producing paper comprising mixing a molecular inclusion compound comprising cyclodextrin and a water insoluble functional additive into the papermaking pulp (Abs; col 2, lines 32-52). The molecular inclusion compounds can be uniformly dispersed in water and thus in the paper product. The additive can be in the form of a dried powder that forms an emulsion of the water insoluble additive upon mixing with water (col 7, lines 9-22).

The art of Ikeda et al, Xu et al, Shibanai and the instant invention is analogous as pertaining to introducing a water-insoluble agent into a papermaking process. Xu et al, Shibanai and the instant invention solve the same problem of making a water-insoluble additive soluble by enclosing it within a water-soluble saccharide. It would have been obvious to one of ordinary skill in the art to use cyclodextrin as the starch component in the composition of Ikeda et al in view of Xu et al and further in view of Shibanai to facilitate the distribution of the bulking agent (A) in the aqueous papermaking pulp. Absent convincing evidence of unobvious results, it would further have been obvious to add the material in the form of a powder composition having the claimed particle size as a well known form taught in the prior art. It would also have been obvious to obtain

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agglomerates of cyclodextrin-guest complexes wherein the bulking agent and emulsifying agent are evenly dispersed. In the aggregates, the emulsifying agent encapsulates the complexes and the aggregate of encapsulated complexes also encloses portions of the emulsifying agent. Since the aggregates are formed at ambient temperature and are stable, it would have been obvious to add them to the process at ambient temperature.

4. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hallstrom et al (6165259).

Hallstrom et al discloses adding a sizing dispersion to a papermaking stock (col 8, lines 1-23). The dispersion comprises a dispersant system comprising an anionic dispersant; a water soluble cationic dispersant, which can be a cationic starch or a cationic synthetic polymer; and a hydrophobic material, which in some embodiments is a fatty acid (aliphatic acid) or fatty acid ester (Abs; col 1, lines 6-9 and 53-59; col 3, lines 21-39; col 4, lines 39-45 and 56-59; col 5, lines 32-42). The composition can be dried to enable simplified shipping and can be homogenized in the presence of water prior to use. Homogenization at elevated temperature is optional, thus the dispersions can be made and used at ambient temperature or, at least, using the dispersion at ambient temperature would have been obvious to one of ordinary skill in the art (col 7, lines 21-46). In examples, the dispersions contained particle sizes of 1-3.5  $\mu\text{m}$  (col 9, lines 51-53; col 11, lines 39-63). Adding the dispersion to the stock with stirring conditions would

have been obvious to one of ordinary skill in the art to distribute the sizing throughout the fibers.

Hallstrom et al does not disclose the particle size of the dried mixture. No particle size reduction step is disclosed prior to or during the homogenization. Absent convincing evidence of unobvious results, it would have been obvious to one of ordinary skill in the art to obtain a particle size in the dried mixture similar to that in the dispersion.

The disclosed hydrophobic material is the same as the claimed bulking agent, thus will also act as a bulking agent in paper manufacturing because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent or at least obvious.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/  
Examiner, Art Unit 1791

/Eric Hug/  
Primary Examiner, Art Unit 1791